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ABSTRACT

This compilation is a survey of the literature pertinent to the design of lighting for educational facilities. The contents are selected to be an overview of the topic while maintaining a technical level comprehensible to the layman concerned with school planning and design. The general subject areas are--(1) the visual and lighted environment as it relates to educational facilities, (2) man's biological, psychological and physiological needs for light in the school environment, (3) the electrically lighted physical environment for educational facilities, (4) the lighting of audio-video facilities and auditoriums, (5) the provision of daylight for the school environment, and (6) applications of lighting design to educational facilities. (JD)

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THE LUMINOUS ENVIRONMENT
FOR EDUCATION

A Selected Bibliography
May 1970

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ERIC CLEARINGHOUSE ON EDUCATIONAL FACILITIES

The University of Wisconsin

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I N T R O D U C T I O N

This compilation is a survey of the literature pertinent to the design of lighting for educational facilities. The contents of the literature cited is selected to be an overview of the topic while maintaining a technical level comprehensible to those concerned with school planning and design but without the technical capabilities of the engineer or physicist.

The selection and identification of the literature is based on--(1) the pertinent subject content contained in the article or book, (2) quantity and quality of the information, and (3) notability of author or authors.

Each citation identified is followed by an alphabetical listing of descriptors which were selected to describe the subject elements of each document. Major descriptors are the most important descriptors assigned to a given document and are identified by an asterisk. The descriptors used throughout this bibliography are part of the Thesaurus of ERIC Descriptors, which is used for indexing, storing, and retrieving documents handled by the ERIC system.

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ILLUMINATING EDUCATIONAL FACILITIES

"Birth and Development of School Lighting," Illuminating Engineering, (Jan. 1956), 36-46.

*Classroom Environment; *Design Needs; *Lighting Design; *Lights; *Task Performance; Chalkboard; Contrast; Daylight; Glare; Health; Illumination Levels; Psychological Design Needs; Specifications

Boyd, R. A. "The Attainment of Quality Daylighting in School Classrooms," Illuminating Engineering, (Jan. 1953), 15-22.

*Daylight; *Glass Walls; *Interior Design; *Research; *Visual Environment; Classroom Design; Illumination Levels; Measurement; Solar Radiation

Burnham, R. D. "New Lighting Concepts for New Schools," American School Board Journal, (Dec. 1956), 31-32.

*Classroom Environment; *Color; *Design Needs; *Interior Design; *Lighting; Architecture; Classrooms; Color Planning; Environmental Criteria; Lighting Design; Lights; Psychological Design Needs; Solar Radiation; Task Performance; Thermal Environment

Clapp, Wilfred F.; And Others. "School Lighting Principles Applied to Design, Renovation, Maintenance," Nation's Schools, 66 (Sept. 1960), 75-101.

*Classroom Environment; *Environmental Research; *Lighting; *Performance Specifications; *Visual Environment; Classroom Design; Daylight; Design; Electrical Systems; Glare; Maintenance; Task Performance; Vision; Visual Acuity

"Colour in School Buildings," Building Bulletin # 9, England: Ministry of Education. June 1962, 68 pp.

*Design; *Environmental Criteria; *Illumination; *Vision; Building Design; Illumination Levels; Lighting; School Design

"Electricity for Schools and Colleges," American School and University, 37 (Jan. 1965).

*College Buildings; *Controlled Environment; *Electrical Systems; *Heating; *Lighting; Air Conditioning; Automation; Classroom Design; Computers; Electrical Appliances; Electronic Controls; Environmental Criteria; Food Service; Parking Areas; Playgrounds; School Design; Theaters

Gibson, Charles D.; And Others. "School Environment Symposium," Illuminating Engineering, (April 1962), 299-326.

*Lighting; *School Environment; *Visual Environment; Administrator Problems; Classroom Design; Costs; Flexible Lighting Design; Television Lighting

Guide for the Evaluation of School Facilities. California Association of Public School Business Officials, April 1966. 64 pp.

*Environmental Influences; *Evaluation Methods; *Facility Guidelines; *Physical Environment; *School Construction; Acoustical Environment; Audiovisual Aids; Equipment; Heating; Maintenance; Safety; School Buildings; School Planning; Spatial Relationship; Visual Environment

"How Gibson's Wheel Measures Light," The Nation's Schools, 74 (Oct. 1964), 55-57.

*Administrator Responsibility; *Design Needs; *Environmental Influences; *Evaluation Techniques; *Performance Criteria; Economics; Illumination Levels; Interior Space; Lighting; Maintenance

"How to Rate Your School Lighting," The Nation's Schools, 74 (Oct. 1964), 53-54.

*Educational Programs; *Evaluation Techniques; *Innovation; *Lighting; *Work Environment; Building Materials; Component Building Systems; School Buildings; Visual Environment

Illuminating Engineering Society. "New Standards for School Lighting," Catholic School Journal, (Nov. 1962), 67-69.

*Design Requirements; *Lighting; *Lighting Design;
*Schools; *Standards; Contrasts; Daylight; Glare;
Illumination Levels; Task Performance; Visual En-
vironment

Jones, Bill F. "A Basic Understanding of School Lighting,"
Catholic School Journal, (Sept. 1961), 111-113.

*Design Needs; *Equipment; *Lighting; *Lighting
Design; *School Design; Contrasts; Daylight; Equip-
ment; Glare; Illumination Levels; Requirements;
Task Performance; Vision

Larson, Leslie. Lighting and Its Design. New York:
Whitney Library of Design, a Division of Whitney
Publications, Inc., 1964. 228 pp.

*Architecture; *Illumination Levels; *Lighting;
*Lighting Design; *Vision; Lights; Photographs

Lighting for Education. New York: Holophane Company, Inc.,
1120 Avenue of the Americas, 1965. 55 pp.

*Classroom Design; *Lighting; *School Environment;
*Standards; *Visual Environment; Design Needs;
Economics; Maintenance

Lighting in Schools. London: Her Majesty's Stationery
Office, or New York: British Information Services,
1967. 73 pp.

*Educational Environment; *Lighting; *Lighting
Design; *Performance Specifications; *Vision; Class-
room Environment; Daylight; Environmental Criteria;
Environmental Influences; Illumination Levels; Solar
Radiation

Logan, H. L. "Direct Lighting for Schools," Illuminating
Engineering, (Nov. 1953), 568-571.

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Design Needs; *Visual Environment; Contrasts; Equip-
ment; Glare; Illumination Levels; Instructional
Materials; Lighting; Specifications

Mason, Ellsworth. "A Guide to the Librarian's Responsibility in Achieving Quality in Lighting and Ventilation," Library Journal, 92 (Jan. 1967), 201-206.

*Controlled Environment; *Environmental Influences; *Libraries; *Lighting; *Ventilation; Air Conditioning; Building Design; Climate Control; Design Needs; Illumination Levels; Mechanical Equipment; Physical Environment; Temperature; Thermal Environment

McFarland, Raymond B. "Brightness Balance in a Classroom," Illuminating Engineering, (July 1950), 415-417.

*Classroom Design; *Lighting Design; Calculations; Daylight; Visual Environment

NCSC Guide for Planning School Plants. East Lansing, Mich.: National Council on Schoolhouse Construction, 1964.

*Educational Facilities; *Educational Planning; *School Location; Controlled Environment; Environmental Influences; Equipment; Planning; Programing; Resources; Sonic Environment; Thermal Environment; Visual Environment

Neidhart, John J. "Meeting Quality Requirements in School Classrooms," Illuminating Engineering, (June 1953), 311-315.

*Chalkboards; *Classroom Design; *Lighting; *Visual Performance; Color; Contrasts; Equipment; Illumination Levels; Lighting Design

"New Lighting Schemes for Integrated Designs," American School and University, 40 (Jan. 1968), 44-46.

*Component Building Systems; *Educational Facilities; *Glare; *Illumination Levels; *Lighting; Air Conditioning; Ceilings; Flexible Lighting Design; Visual Perception

Phillips, Derek. Lighting in Architectural Design. New York: McGraw-Hill Book Company, 1964. 310 pp.

*Architecture; *Illumination Levels; *Lighting;

*Performance Specifications; Component Building Systems; Controlled Environment; Cost Effectiveness; Daylight; Environmental Criteria; Facility Requirements; Glare; Interior Design; Lights; Maintenance; Physics; Physiological Design Needs; Psychological Design Needs; Safety; Vision; Visual Environment

Poole, Frazer G. The Library Environment, Aspects of Interior Planning. Proceedings of the Library Equipment Institute (St. Louis, Missouri, June 26-27, 1964). Chicago: American Library Association, 1965. 69 pp.

*Environment; *Library Equipment; *Library Facilities; *Library Planning; Acoustical Environment; Flooring; Furniture; Lighting

Putnam, Rufus A. and Gilbert T. Lee. "Improved School Lighting....The Minneapolis Plan," Illuminating Engineering, (June 1953), 323-324.

*Interior Design; *School Improvement; *Visual Environment; Chalkboards; Criteria; Electric Circuits; Illumination Levels

Reida, George W. Artificial Lighting for Modern Schools, A Guide for Administrative Use. Topeka, Kansas: State Department of Public Instruction, 1960. 52 pp.

*Classroom Environment; *Equipment Standards; *Illumination Levels; *Lighting; *Task Performance; Administrator Guides; Building Improvement; Economics; Environmental Influences; Health Needs; Illumination; Maintenance; Physical Environment; Vision; Work Environment

School Lighting. Cleveland, Ohio: General Electric, 1964. 16 pp.

*Economics; *Illumination Levels; *Lighting; *School Environment; *Visual Environment; Athletics; Auditoriums; Audiovisual Aids; Classrooms; Corridors; Multipurpose Classrooms; Safety; Television

"School Lighting," American School Board Journal Bookazine, (June 1965). New York: Editor, Bruce Publishing Company, 866 3rd Ave., New York 10022. 50 pp.

*Auditoriums; *Innovation; *Lighting; *Maintenance;
*Windowless Rooms

School Lighting Application Data. Excerpts from the IES
Light Handbook, 3rd Edition. New York: Illuminating
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*Lighting; *Performance Criteria; *School Environment;
Evaluation Techniques

Seagers, Paul W. "Developing Color Treatment for School
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Needs; Task Performance

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Since World War II," American School and University,
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Design; *Visual Environment; Contrasts; Equipment;
Flexible Lighting Design; Glare; Glass Walls; Illum-
ination Levels; Materials; Solar Radiation

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tary Schools; Health; Heating; Lighting; School Safety;
Structural Building Systems; Ventilation

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*Human Posture; *Illumination; *School Environment; *Task Performance; *Visual Environment; Contrasts; Glare; Illumination Levels; Lighting; Physiology; Writing

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Crouch, C. L. "Better Lighting Through Research," American School and University (May 1966).

*Equipment Standards; *Flexible Lighting Design; *Illumination Levels; *Lighting; *Task Performance; Audiovisual Aids; Educational Innovation; School Buildings

Crouch, C. L. and J. E. Kaufman. "Practical Application of Polarization and Light Control for Reduction of Reflected Glare," Illuminating Engineering, 58 (April 1963), 277-291.

*Glare; *Illumination Levels; *Task Performance; *Visual Discrimination; *Visual Environment; Controlled Environment; Design Needs; Human Posture; Lighting; Vision; Visual Acuity

Crouch, C. L. "Why 30 Footcandles Minimum for Schoolrooms," Illuminating Engineering, (June 1950), 343-346.

*Illumination Levels; *Task Performance; *Vision; Academic Performance; Performance Criteria; Performance Factors; Physiology; Reading; Writing

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"The Educational Environment, A Seminar Sponsored by the AIA Committee on School and College Architecture, at the Annual Meeting of the American Association of School Administrators, Atlantic City, February 1964," Journal of the American Institute of Architects, (June 1964), 8 pp.

*Auditory Perception; *Building Design; *Environmental Influences; *Student Needs; *Visual Perception; Controlled Environment; Environmental Criteria; Temperature; Windowless Rooms

The Effect of Windowless Classrooms on Elementary School Children. Ann Arbor, Mich.: Michigan University, Architecture Research Laboratory, Department of Architecture, 1965. 103 pp.

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Gibson, Charles D. "How to Shed Light on Flexible Learning Space," Nation's Schools, 81 (May 1968), 68-73.

*Design Needs; *Flexible Classrooms; *Flexible Lighting Design; *Visual Environment; Contrast; Equipment Standards; Glare; Illumination Levels; Lights; Maintenance; Movable Walls; Multi-purpose Classrooms; Task Performance

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*Illumination Levels; *Lighting; *Measurement Tech-
niques; Building Design; Instructional Materials;
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Guth, Sylvester K. "Comfortable Brightness Relationships
for Critical and Casual Seeing," Illuminating Engineering,
(Feb. 1951), 65-75.

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Tomorrow's Lighting," American School Board Journal,
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Acoustical Environment; Thermal Environment; Visual
Environment

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Record, 100 (Feb. 1946), 78-90.

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*Human Posture; *Light; *Visual Environment; Classroom
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Environmental Criteria; Glare; Human Body; Illumination
Levels; Interior Space; Lighting; Performance Speci-
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nated Classroom," The Nation's Schools, 45 (March 1950),
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 *Lighting Design; *Physical Design Needs; *Psychologi-
 cal Design Needs; Biological Influences; Biology;
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 Physics; Physiology; School Design; Task Performance;
 Vision

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*Classroom Design; *Educational Environment; *Environ-
 mental Influences; *Physiology; *Psychological Design
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 Curriculum; Equipment Design; Furniture; Glare; Illum-
 ination Levels; Visual Perception

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 cussion of Paper by Willard Allphin, Illuminating
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*Environmental Influences; *Human Posture; *Light;
 *Physiology; *Scientific Research; Biology; Dental
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 Task Performance; Visual Perception

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 *Lighting; *Physics; Color; Daylight; Environmental
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Kahler, William H. "Visibility of Chalkboards for Classrooms,"
American School Board Journal, (Dec. 1950), 47-49.

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ment and Pupil Welfare," Journal of Educational Psycho-
logy, 45 (1954), 52-59.

*Classroom Design; *Classroom Research; *Health Needs;
*Physical Environment; *Visual Environment; Field
Studies; Furniture Arrangement; Furniture Design;
Human Factors; Human Posture; Lighting Design; Physical
Design Needs; Psychological Affects; Task Performance;
Vision

Ketch, J. M., and C. J. Allen. "Visibility of School Tasks,"
Illuminating Engineering, (June 1953), 299-305.

*Instructional Materials; *Task Performance; *Vision;
Contrasts; Glare; Handwriting; Human Factors; Instruc-
tional Materials; Performance Factors; Visual Acuity;
Visual Perception

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Influences

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*Environmental Research; *Physical Environment; *School
Environment; Acoustical Environment; Climate Control;
Controlled Environment; Human Engineering; Lighting;
Physical Design Needs; Psychological Design Needs;
Social Environment; Temperature; Thermal Environment;
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*Visual Perception; Contrast; Environmental Research;
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*Environmental Criteria; *Environmental Influences;
*Health; *Light; *Solar Radiation; Building Design;
Daylight; Glare; Human Body; Human Engineering; Illum-
ination Levels; Physiology

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*Environmental Influences; *Lighting; *Motor Reactions;
*Space Orientation; *Vision; Environmental Research;
Eyes; Illumination Levels; Physiology; Safety; Visual
Environment; Visual Perception

Logan, Henry L. "The Relationship of Light to Health,"
Illuminating Engineering, (March 1967), 159-167.

*Biology; *Environment; *Light; *Physiology; *Vision;
Environmental Criteria; Health; Human Body; Illumination
Levels; Lighting; Mental Health; Physical Design Needs;
Physical Health; Psychological Design Needs; Safety;
Solar Radiation; Space Orientation; Visual Discrimina-
tion; Visual Environment; Visual Perception

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Van Nostrand Company, Inc., 1930. 254 pp.

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ing; Physiology

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*Classroom Environment; *Interior Design; *School Design; *Sensory Deprivation; *Visual Environment; Architectural Character; Architectural Education; Architectural Programming; Building Design; Component Building Systems; Design Needs; Educational Needs; Flexible Classrooms; Lighting Design; Prefabrication; Psychological Design Needs; Windowless Classrooms

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*Light; *Solar Radiation; Biology; Biological Influences;
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*Performance Specifications; *Visual Environment;
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*Vision; Illumination Levels; Light; Task Performance;
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Specifications; *Vision; *Visual Environment; Color;
Daylight; Environmental Research; Eyes; Glare; Human
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*Health; *Physical Health; *School Environment; Acous-
tics; Building Design; Cleaning; Educational Facilities;
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Sanitary Facilities; School Maintenance; School Services;
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ing Design; *School Administration; *School Design;
Classroom Environment; Design Needs; Educational Envir-
onment; Visual Environment; School Architecture; Stan-
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*Human Development; *Lighting; *Research; Design; Light;
Performance

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